

**TURBOMACHINE AND METHOD FOR OPERATING A TURBOMACHINE****CROSS REFERENCE TO RELATED APPLICATIONS**

[0001] This application claims priority to the European application No. EP03000726.4, filed January 13, 2003 and to the International Application No. PCT/EP2003/014417, filed December 17, 2003 which are incorporated by reference herein in their entirety.

**FIELD OF INVENTION**

[0002] The invention relates to a turbomachine with a rotor and with a stator, a flow duct being formed for an action fluid by means of which the rotor can be driven. The invention relates, furthermore, to a method for operating a turbomachine with a rotor and with a stator and with a flow duct.

**BACKGROUND OF INVENTION**

[0003] Turbomachines are known, for example conventional steam turbines or gas turbines, in the forms of construction of which, normally, the conversion of energy takes place by means of what are known as blade cascades or blade wheels which drive the rotor of the turbomachine with an action fluid, for example steam or hot gas flows through the turbomachine. The blade cascades used in this case have the function, in the flowing action fluid, of converting pressure energy into kinetic energy and converting kinetic energy into mechanical energy. These blade cascades are conventionally designed as moving blade cascades fastened to the rotor or as guide blade cascades in the casing.

**SUMMARY OF INVENTION**

[0004] For the design of blade cascades of this type, particularly at high temperatures of the action fluid flowing through the flow duct, it is necessary to ensure flow optimization, but, in particular, also the strength of, for example, the blade and blade fastening. There is particular significance, in this context, in the fact that the strength characteristic values of the high-temperature materials used decrease markedly at high temperatures. However, the aim is, in general, a higher process temperature, since this results in a rise in the thermodynamic efficiency of the turbomachine. This influence of the high operating temperature on the strength characteristic values of

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